

SUPPLEMENT



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NEBOSH CERTIFICATE – UNIT NCC1

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INTRODUCTION

This Supplement has been prepared to augment your study material for the Construction Certificate Unit NCC1 course. You should read it in conjunction with your existing course material.

ELEMENT 1: CONSTRUCTION LAW AND MANAGEMENT

Scope and Application of the Construction (Design and Management) Regulations 2007

Main Duty Holders

Clients

The client must take reasonable steps to ensure implementation of adequate health, safety and welfare arrangements, including allocation of time and resources for all stages.

He/she has a duty to check competence and resources of all appointees, and to ensure there are suitable management arrangements for carrying out the work in a safe manner also including welfare facilities. He/she must co-operate with others concerned in the project as is necessary to allow other duty holders to comply with their duties under **CDM**.

Additionally, the client must provide pre-construction information to designers and contractors.

A contractor's competence needs to be assessed by use of certain questions or a checklist, for example:

- Examine their health and safety policy statement and organisation and arrangements for implementation.
- Has any enforcement action been taken against them?
- Check monitoring arrangements, such as records of site inspections.
- Qualifications of staff, particularly those with health and safety responsibilities.
- Membership of a professional body or trade association.
- Check they have employers' and public liability insurance.
- Arrangements for liaising with clients.

CDM Co-ordinator

He/she must identify, collect and pass-on pre-construction information.

Provision of Information

Appendix 2 of the Approved Code of Practice, L144 *Managing Health and Safety in Construction*, lists the topics to be included:

"1 Description of project

(a) project description and programme details including:

(i) key dates (including planned start and finish of the construction phase), and

- (ii) *the minimum time to be allowed between appointment of the principal contractor and instruction to commence work on site;*
- (b) *details of client, designers, CDM co-ordinator and other consultants;*
- (c) *whether or not the structure will be used as a workplace (in which case, the finished design will need to take account of the relevant requirements of the Workplace (Health, Safety and Welfare) Regulations 1992);*
- (d) *extent and location of existing records and plans.*

2 Client's considerations and management requirements

- (a) *arrangements for:*
 - (i) *planning for and managing the construction work, including any health and safety goals for the project,*
 - (ii) *communication and liaison between client and others,*
 - (iii) *security of the site,*
 - (iv) *welfare provision;*
- (b) *requirements relating to the health and safety of the client's employees or customers or those involved in the project such as:*
 - (i) *site hoarding requirements,*
 - (ii) *site transport arrangements or vehicle movement restrictions,*
 - (iii) *client permit-to-work systems,*
 - (iv) *fire precautions,*
 - (v) *emergency procedures and means of escape,*
 - (vi) *'no-go' areas or other authorisation requirements for those involved in the project,*
 - (vii) *any areas the client has designated as confined spaces,*
 - (viii) *smoking and parking restrictions.*

3 Environmental restrictions and existing on-site risks

- (a) *Safety hazards, including:*
 - (i) *boundaries and access, including temporary access – for example narrow streets, lack of parking, turning or storage space,*
 - (ii) *any restrictions on deliveries or waste collection or storage,*
 - (iii) *adjacent land uses – for example schools, railway lines or busy roads,*
 - (iv) *existing storage of hazardous materials,*
 - (v) *location of existing services particularly those that are concealed – water, electricity, gas, etc,*
 - (vi) *ground conditions, underground structures or water courses where this might affect the safe use of plant, for example cranes, or the safety of groundworks,*
 - (vii) *information about existing structures – stability, structural form, fragile or hazardous materials, anchorage points for fall arrest systems (particularly where demolition is involved),*

- (viii) *previous structural modifications, including weakening or strengthening of the structure (particularly where demolition is involved),*
 - (ix) *fire damage, ground shrinkage, movement or poor maintenance which may have adversely affected the structure,*
 - (x) *any difficulties relating to plant and equipment in the premises, such as overhead gantries whose height restricts access,*
 - (xi) *health and safety information contained in earlier design, construction or 'as-built' drawings, such as details of pre-stressed or post-tensioned structures;*
- (b) *Health hazards, including:*
- (i) *asbestos, including results of surveys (particularly where demolition is involved),*
 - (ii) *existing storage of hazardous materials,*
 - (iii) *contaminated land, including results of surveys,*
 - (iv) *existing structures containing hazardous materials,*
 - (v) *health risks arising from client's activities.*

4 Significant design and construction hazards

- (a) *significant design assumptions and suggested work methods, sequences or other control measures;*
- (b) *arrangements for co-ordination of ongoing design work and handling design changes;*
- (c) *information on significant risks identified during design;*
- (d) *materials requiring particular precautions."*

Source: L144 *Managing Health and Safety in Construction. Construction (Design and Management) Regulations 2007. (CDM) Approved Code of Practice. ISBN 9780717662234.*

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The level of detail should be proportionate to the risks involved in the project.

Sources of Information on Health and Safety

Sources of data external to the organisation include:

- National legislation (e.g. Regulations such as **CDM, Work at Height**).
- Government Enforcing Authority publications such as Codes of Practice and Guidance Notes, particularly on fire safety and electrical safety.

Other organisations would include:

- Professional bodies such as ICE (Institution of Civil Engineers), CIOB (Chartered Institute of Building), RICS (Royal Institution of Chartered Surveyors).
- Utility companies.
- Trade unions.
- Trade associations.

ELEMENT 2: CONSTRUCTION SITE – HAZARDS AND CONTROLS

Initial Site Assessment

Previous/Current Use

Existing Occupied/Unoccupied Premises

Note any evidence of trespass, vandalism or arson, also evidence of drug use.

All existing buildings, other than modern ones, will need to be surveyed for the presence of asbestos-containing materials.

History of Site

Voids may also have been created by previous construction work; cellars will be obvious in existing buildings, but may not be obvious where buildings have previously been demolished.

Topography

Topographical mapping can be used to give a representation of local features on a map, including rivers, streams, waterways, housing and other buildings and natural features.

Welfare Facilities

First-Aid

First-aiders also deal with minor injuries that would otherwise go untreated.

Assessment of First-Aid Provision

Though the legal responsibility rests with each individual employer, it is logical on a construction site to have shared provision for all contractors.

Also consider any specific needs of, for example, people at particular risk, or on grounds of their religion, etc.

ELEMENT 3: MOVEMENT OF PEOPLE AND VEHICLES – HAZARDS AND CONTROL

Control Measures for Safe Vehicle Operations

Management of Vehicle Movements

Movement Systems

A control hierarchy for reversing could be followed:

- Eliminate/reduce reversing by use of one-way systems and turning areas.
- Ensure adequate visibility (through attention to layout, providing lighting, and wearing of high-visibility clothing).
- Use safe systems of work, particularly a banksman could be used for reversing or any difficult manoeuvring required, also mirrors.

- Use warning devices (audible and visible warning devices).

ELEMENT 4: MANUAL AND MECHANICAL HANDLING – HAZARDS AND CONTROL

Minimising Manual Handling Risks

Recognised Techniques for Manual Lifting

Example

Kerb laying involves a serious risk of injury to employees doing such work. The hazards can give rise to musculoskeletal disorders and hernias. Crushing injuries to hands are also commonplace.

The best method of control is to follow a hierarchy of control measures:

- Elimination: design out the need to manual handle kerbs.
- Substitution: use alternative construction materials; some lighter products are available.
- Total mechanisation, handled and laid mechanically: there are a number of mechanical kerb-handling solutions available, e.g. vacuum lifters.
- Partial mechanisation.
- Manual handling as a last resort, for short stretches of kerb, or where it is not reasonably practicable to use any of the above techniques. Workers should be trained in manual handling techniques. One possibility is two workers sharing the lift.

Control Measures for Lifting and Moving Equipment Operations

Cranes

The person controlling the lifting operation must firstly ensure that the crane is suitable for the purpose, marked with the SWL (safe working load), and that there is documentary evidence to show that the required examinations, inspection and maintenance have been carried out.

Secondly the site must be inspected for ground condition, overhead obstructions, etc. Following consultation with everyone involved, a plan should be put in place to ensure proper co-ordination of the operation, ensuring the driver, slinger and banksman are all competent and conversant with the hand signals or other means of communication to be used.

ELEMENT 5: WORK EQUIPMENT – HAZARDS AND CONTROL

Hand-Held Tools

Portable Power Tools

Control Measures for Safe Use

- Disc cutters must have an adequate top guard properly positioned, and the operator must wear goggles and boots. Dust can be minimised by wet cutting, but a respirator must also be

worn. Protective measures against HAVS are insulation of the handles, gloves, and job rotation. Ear defenders should also be worn. The operator should be trained in the use of the tool, and only a competent person must change the disc. For petrol-driven cutters, a safe system of work should be provided for refuelling, and only the minimum necessary amount of fuel kept on site.

Machinery Hazards

Hazards of Particular Equipment

Circular Saws

Safe use of these saws also includes local exhaust ventilation to remove the sawdust, supplemented by respiratory protective equipment. Ear defenders should also be worn. The operator should be trained.

ELEMENT 6: ELECTRICAL – HAZARDS AND CONTROL

Summary

Prevention of fires caused by electricity requires attention to design, management, maintenance and staff. In the area of design, measures would include installations to meet IEE standards with the provision of sufficient outlets to prevent overloading and the selection and suitability of equipment for an environment which might be potentially flammable; the use of overload protection such as MCBs and RCDs and the provision of earthing to prevent static build-up. Management issues would include the storage of materials, particularly flammables, general housekeeping issues, cable management, systems for the reporting of defects and the control of personal electrical equipment in the workplace, including contractors' tools. In the area of maintenance, important issues would include the regular testing of installations and, particularly, portable equipment. As for staff, competence, training and the provision of information are factors together with the eminently sensible precaution of switching off equipment after use.

ELEMENT 8: CHEMICAL AND BIOLOGICAL HEALTH – HAZARDS AND CONTROL

Introduction

This area of health and safety is subject to detailed control by two important statutory regulations – the **Control of Substances Hazardous to Health Regulations 2002** (known generally as **COSHH**) and the **Chemicals (Hazard Information and Packaging for Supply) Regulations 2009** (known as **CHIP 4**).

In addition, the **European Regulation (EC 1907/2006) on the Registration, Evaluation, Authorisation and Restriction of Chemicals**, abbreviated as “**REACH**”, has a particular impact on the requirements for Safety Data Sheets for substances hazardous to health.

Also of importance are the **Personal Protective Equipment (PPE) at Work Regulations 1992, as amended**, the **Environmental Protection Act 1990** and the **Controls on Dangerous Substances and Preparations Regulations 2006**.

Forms and Classification of Hazardous Substances

Forms of Biological Agents

Infection may occur through animal or insect bites, or by contact with excrement or polluted water.

Main Classification of Hazardous Substances

The **Chemicals (Hazard Information and Packaging for Supply) Regulations 2009**, abbreviated as **CHIP 4** (or “the **CHIP Regulations**”) and the **European Regulation (EC 1907/2006) on the Registration, Evaluation, Authorisation and Restriction of Chemicals**, abbreviated as “**REACH**”, are the foundation of general chemicals regulation.

Health Hazards of Agents Found in Construction

Petrochemicals

Petrol, diesel and oils are used in much machinery. Skin contact causes defatting and can lead over a period of time to dermatitis.

Risks Associated with Hazardous Substances

Sources of Information

As we noted previously, the **Chemicals (Hazard Information and Packaging for Supply) Regulations 2009 (CHIP)**, in conjunction with the **European Regulation (EC 1907/2006) on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)**, are the foundation of general chemicals regulation.

Appropriate Control Measures

Other Protective Equipment and Clothing

Gloves

Protective gloves and gauntlets are available for:

- Biological agents – such as viruses, fungi and bacteria; these may be encountered on sites by water courses.
- Water – it should not be disregarded that water, even uncontaminated, can cause damage to the skin if exposed for long periods.

Personal Hygiene and Protection

Good welfare facilities for disinfection need to be provided.

Vaccines are available for Weil's disease.

Waste Disposal and Control of Pollution

Waste Disposal

Hazardous Waste

Exempted producers are those that produce hazardous waste, but in quantities of less than **500** kg per year.

Summary

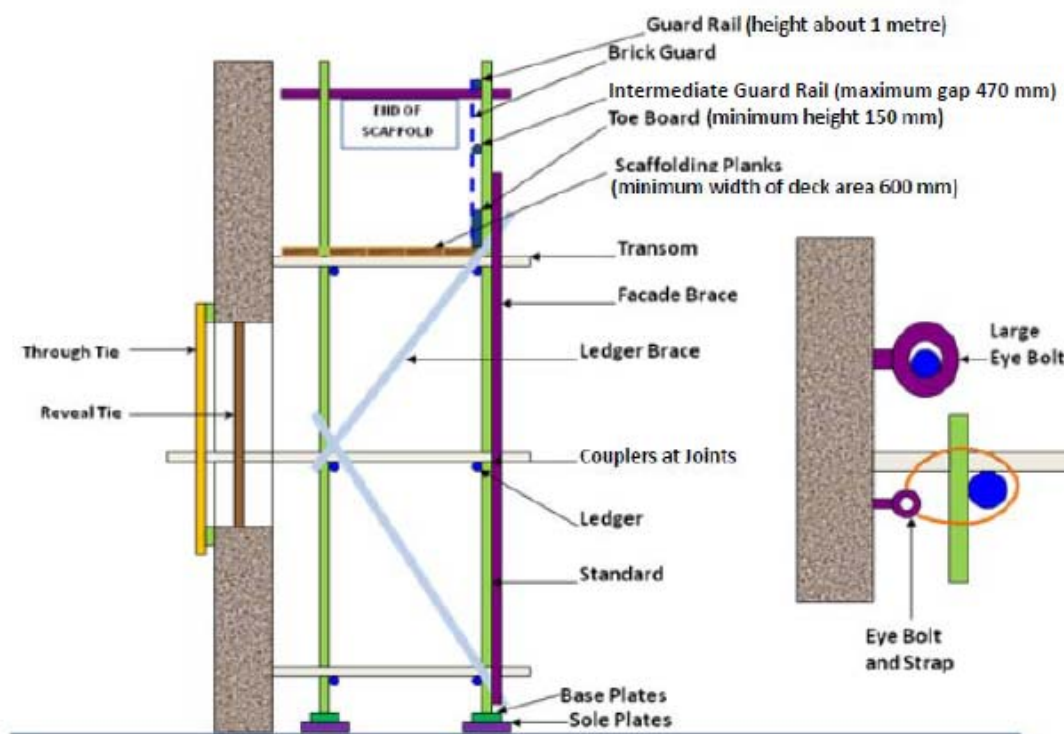
Substances and preparations which are hazardous to health must, under the **CHIP Regulations** and **REACH**, be classified by the category of danger and risk that they present and, on supply, be appropriately labelled and accompanied by a safety datasheet. The **CHIP** Approved Supply List provides standard categories of danger and associated symbols, and risk and safety phrases for these purposes.

ELEMENT 10: WORKING AT HEIGHT – HAZARDS AND CONTROL

Safe Working Practices for Access Equipment and Roofwork

Other Aspects of Scaffolding

Design of Loading Platforms



Independent Tied Scaffold

Roofwork

Certain precautions need to be taken during roofwork to ensure the protection of the following:

- **Workers**

Arrangements will start with the use of trained and competent personnel, provided with appropriate PPE, and adequate supervision and monitoring.

- **Occupants of Buildings**

If staff are continuing to work in a building while it is for example extended, then they need to be informed on the risks and precautions to be observed; barriers and signs will be needed; safe arrangements for vehicle movements; and security.

- **Members of the Public**

Precautions also include prevention of access by unauthorised persons, including children.

Means of Access

Roof access requires to be carefully planned as the work progresses. This needs to address also the means of transporting tools and materials to and from the roof, including the removal of waste.

ELEMENT 11: EXCAVATION WORK AND CONFINED SPACES – HAZARDS AND CONTROL

Control Measures for Confined Space Working

Emergency Arrangements

The rescue plan must be communicated to all personnel involved before commencing work.

There need to be properly trained people, sufficiently fit to carry out their task, ready at hand, and capable of using any equipment provided for rescue; also at least one first-aider.

Equipment should include:

- Lifting tripod and winch.
- Means of communication and summoning help: a tug-rope is commonly used when personnel are not visible; if radio is to be used, it must immediately be tested on entry.

ELEMENT 12: DEMOLITION – HAZARDS AND CONTROLS

Demolition Appropriate Control Measures

Dust and Fume

Protection against dust from demolition activities may include:

- Using techniques that produce low levels of dust; damping down.

Revision Question

What protection measures are used for dust control on demolition sites?

Suggested Answer to Revision Question

Protection against dust from demolition activities may include the following:

- A **COSHH** assessment.
- Maintaining a high standard of housekeeping, regularly cleaning and sweeping the site roads.
- Using techniques that produce low levels of dust; damping down.
- Designating vehicle routes to and from the site to limit the problem.
- Maintaining plant and equipment to a high standard, so that it is less likely to break down, will emit fewer pollutants and prevent spillage of oil and fuel to the environment.
- Using wheel-washing facilities at exits onto public traffic routes.
- Using water sprays as a dust suppressant, taking care as to the potential consequences of environmental contaminants or the proximity to electrical services.
- Using air movers or local exhaust ventilation where possible.
- Using covered wagons and skips and restricting the speed of vehicles.
- PPE being used as a last line of defence.
- Where asbestos might be present, samples need to be taken to verify its presence and the necessary precautions, actions and required notification should be carried out.
- Precautions need to be put in place if lead is found to be present.